

## **Monitoring stream ecosystems to distinguish between the effects of runoff from a wildfire from anthropogenic disturbances**

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### **Biographical Sketches of Authors**

Chester Anderson received his B.A. in Ecology and Evolution from the University of California, Santa Barbara and his M.S. in Entomology from Cornell University. He conducted basic research for 15 years in stream ecology and in high elevation lakes at the Rocky Mountain Biological Laboratory and has been involved in numerous stream monitoring and research efforts for the Pine Lands Commission in New Jersey and a variety of agencies and companies in California, Arizona, New Mexico and Utah. In 1995 he began his own consulting business. Through that business he has developed water quality monitoring studies that include macroinvertebrates, fish, periphyton and water chemistry.

Michiko Burns received her B.Sc. in Biology from Fort Lewis College in Durango, Colorado. She has worked for five years with the National Park Service conducting research studies into noxious weed control using biological control agents. Of late, she has overseen the Water Quality Program of the Southern Ute Indian Reservation, which includes an intensive surface and groundwater monitoring program, The STORET Database Project, a wetland/riparian area study as well as the Missionary Ridge Fire Complex study.

### **Abstract**

An intense fire in the summer of 2002 in the watersheds of 2 regulated and 1 free-flowing stream is resulting in large amounts of sediment and organic matter eroding into the streams, impacting habitat and nutrient dynamics. The streams flow through urban and agricultural landscapes that also add sediment and nutrients and it is important to the agencies that monitor the streams that the effects of runoff from the burn area be distinguished from existing and potential anthropogenic effects and the prolonged drought that is coupled with the effects of the fire. Chlorophyll and ash free dry mass are being utilized to measure levels of periphyton. Pebble count and embeddedness measures are being utilized to assess impacts of sediment to habitat and total volatile solids are being measured to determine amount of organic loading to depositional areas. Significant algal blooms and sediment impacts to habitat are being measured at some sites in each stream. The algal blooms appear to be caused by urban and agricultural runoff and sediment from the burn area appears to be impacting sites in the regulated streams immediately below the burn area but there are no detectable sediment impacts being measured in the lower reaches or at sites in the free-flowing stream.